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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/663,661	09/17/2003	Koji Tsukashima	031163	3799

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WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP
1250 CONNECTICUT AVENUE, NW
SUITE 700
WASHINGTON, DC 20036

EXAMINER

SEMENENKO, YURIY

ART UNIT PAPER NUMBER

2841

DATE MAILED: 07/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/663,661	Applicant(s) TSUKASHIMA, KOJI	
	Examiner Yuriy Semenenko	Art Unit 2841	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a) because they fail to show portion A and B as described in the specification (page 5). Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following:

Ground portion A in Fig. 2A, B is confusing with cross-sectional view taken along line A-A'. It is better if it use different letters.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3.1. Claims 1-4, 11-15, 24 are rejected under 35 U.S.C. 102(b) as being anticipated by K. Uemura (Patent # 5495125) hereinafter Uemura.

3.1.1. Regarding claims 1, 11, 12, 24: Uemura discloses in Fig. 4 a transmission line 9 comprising: a transmission line substrate 6; signal line 1; and first ground pattern 2 that is provided on the transmission line substrate and is located between the transmission line substrate 6 and a metal wire 4 used to connect the signal line 1 to a component 3. And further, the signal line 1 sandwiched between and spaced from ground members 2a and 2b create means for adding a predetermined electric capacitance to a metal wire 4 that connects the signal line 1 to a component 3, as recited claims 11 and 24.

3.1.2. Regarding claims 2, 13: And furthermore, Uemura discloses in Fig. 4 a transmission line as claimed in claim 1 (12), wherein the first ground pattern is located between the signal line 1 and the component 3.

3.1.3. Regarding claims 3, 14: And furthermore, Uemura discloses in Fig. 4 a transmission line as claimed in claim 1 (12), further comprising a second ground pattern that is formed on the transmission line substrate 6 and is parallel the signal line 1, wherein the first ground pattern and the second ground pattern are integrally formed.

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3.1.4. Regarding claims 4, 15: And furthermore, Uemura discloses in Fig. 4 a transmission line as claimed in claim 3 (14), wherein the first ground pattern and the second ground pattern are integrally formed and have one of an L shape and a horseshoe shape (see Fig. 4).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4.1. Claims 5, 16 are rejected under 35U.S.C. 103(a) as being obvious over Uemura .

4.1.1. Regarding claims 5, 16: Uemura discloses the transmission line having all of the claimed features as discussed above with respect claim 3 (14), wherein: the signal line has an arc-shaped end (Fig. 4) facing the first ground pattern; and the first ground pattern and the second ground pattern are integrally formed. Although, Uemura doesn't explicitly teach the arc-shaped portion that equally spaced apart from the arc-shaped end, it was well know, that the arc-shaped portion that equally spaced apart from the arc-shaped end .

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Therefore it would have been obvious to one of ordinary skill in the art, at time the invention was made for Uemura to include in his invention that the arc-shaped portion that equally spaced apart from the arc-shaped end to provide continuation of high-frequency transmission line.

Further, it has been held In re Dailey, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

4.2. Claims 6, 7, 17, 18 are rejected under 35U.S.C. 103(a) as being obvious over Uemura in view of J. Custer et al. (Patent #6473314) hereafter Custer.

4.2.1. Regarding claims 6, 17, 18: Uemura discloses the transmission line having all of the claimed features as discussed above with respect claim 1 (12, 14).

However, Uemura doesn't explicitly teach second ground pattern formed on surface of the transmission line substrate opposite to the surface on which the signal line is formed, wherein the first ground pattern is connected to the second ground pattern via a through hole formed in the transmission line substrate.

Custer teaches second ground pattern 154, Fig. 3, formed on surface of the transmission line substrate opposite to the surface on which the signal line 121a, 121b is formed, wherein the first ground pattern 113 is connected to the second ground pattern 154 via a through hole 149 formed in the transmission line substrate (column 5, lines 18-22). Therefore, at the time the invention was made, it was well know that the second ground pattern formed on surface of the transmission line substrate opposite to the surface on which the signal line is formed, wherein the first ground pattern is connected to the second ground pattern via a through hole formed in the transmission line substrate.

Therefore it would have been obvious to one of ordinary skill in the art, at time the invention was made for Uemura to include in his invention the second ground pattern formed on surface of the transmission line substrate opposite to the surface on which the signal line is formed, wherein the first ground pattern is connected to the second ground pattern via a through hole formed in the transmission line substrate, as taught by Custer because Custer teaches that such a configuration prevent RF radiation propagation through the assembly.

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4.2.2. Regarding claims 7, 19: And furthermore, Uemura, as modified, discloses in Fig. 4 a transmission line as claimed in claim 6 (18), wherein the first ground pattern has a portion that surrounds an end of the signal line and has one of an L shape and a horseshoe shape, (see Fig. 4) Further, it has been held In re Dailey, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

4.3. Claims 8, 9, 20, 21 is rejected under 35U.S.C. 103(a) as being obvious over Uemura in view of Y. Kadowaki (Patent #5057805) hereafter Kadowaki.

4.3.1. Regarding claim 8: Uemura discloses in Fig. 4 a transmission line 9 comprising: transmission line substrate 6; signal line 1.

However, Uemura doesn't explicitly teach a first ground pattern provided on a side surface of the transmission line substrate on which side a metal wire extends from the signal line toward a component.

Kadowaki teaches a first ground pattern 14 (Fig. 5) provided on a side surface of the transmission line substrate 18 on which side a metal wire extends from the signal line 17 toward a component 11. Therefore, at the time the invention was made, it was well know to use a first ground pattern provided on a side surface of the transmission line substrate.

Therefore it would have been obvious to one of ordinary skill in the art, at time the invention was made for Uemura to include in his invention a first ground pattern provided on a side surface of the transmission line substrate on which side a metal wire extends from the signal line toward a component.

Benefit of doing so is to provide matching of impedance of transmission line.

4.3.2. Regarding claim 20: Uemura discloses in Fig. 4 a device comprising: a transmission line 9 including transmission line substrate 6; signal line 1 provided on the transmission line substrate; component 3; a metal wire 4 which connects the signal line to the component.

However, Uemura doesn't explicitly teach a first ground pattern provided on a side surface of the transmission line substrate on which side a metal wire extends from the signal line toward a component.

Kadowaki teaches a first ground pattern 14 (Fig. 5) provided on a side surface

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of the transmission line substrate 18 on which side a metal wire extends from the signal line 17 toward a component 11. Therefore, at the time the invention was made, it was well known to use a first ground pattern provided on a side surface of the transmission line substrate.

Therefore it would have been obvious to one of ordinary skill in the art, at time the invention was made for Uemura to include in his invention a first ground pattern provided on a side surface of the transmission line substrate on which side a metal wire extends from the signal line toward a component.

Benefit of doing so is to make more compact of the device.

4.3.3. Regarding claims 9, 21: And furthermore, Uemura discloses in Fig. 4 a transmission line as claimed in claim 8 (20), wherein the first ground pattern is located between the signal line 1 and the component 3.

4.4. Claims 10, 22, 23 are rejected under 35U.S.C. 103(a) as being obvious over Uemura in view of Kadowaki and further view of Custer.

4.4.1. Regarding claims 10, 22, 23: Uemura discloses in Fig. 4 the transmission line having all of the claimed features as discussed above with respect claim 8 (20). And further, comprising a second ground pattern formed on surface of the transmission line substrate opposite to the surface on which the signal line is provided, wherein the first ground pattern and the second ground pattern are integrally formed.

However, Uemura doesn't explicitly teach second ground pattern formed on surface of the transmission line substrate opposite to the surface on which the signal line is formed, wherein the first ground pattern is connected to the second ground pattern via a through hole formed in the transmission line substrate (the second ground pattern are integrally formed).

Custer teaches second ground pattern 154, Fig. 3, formed on surface of the transmission line substrate opposite to the surface on which the signal line 121a, 121b is formed, wherein the first ground pattern 113 is connected to the second ground pattern 154 via a through hole 149 formed in the transmission line substrate (column 5, lines 18-22). Therefore, at the time the invention was made, it was well known that the second ground pattern formed on surface of the

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transmission line substrate opposite to the surface on which the signal line is formed, wherein the first ground pattern is connected to the second ground pattern via a through hole formed in the transmission line substrate.

Therefore it would have been obvious to one of ordinary skill in the art, at time the invention was made for Uemura to include in his invention the second ground pattern formed on surface of the transmission line substrate opposite to the surface on which the signal line is formed, wherein the first ground pattern is connected to the second ground pattern via a through hole formed in the transmission line substrate (the second ground pattern are integrally formed), as taught by Custerr because Custer teaches that such a configuration prevent RF radiation propagation through the assembly.

Relevant Art

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

5.1. B. Su et al. (Patent #2002/0074162) hereinafter Su.

Su discloses structure of a ball grid array to reduce cross talk of adjacent signals. The substrate comprises a plurality of signal pads formed on a die, a ring around the die, and a plurality of signal fingers around the ring.

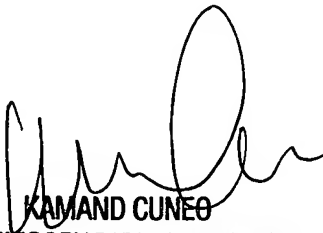
6.1. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yuriy Semenenko whose telephone number is (571) 272-6106. The examiner can normally be reached on 8:30am - 5:00pm.

86.2. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on (571)- 272-1957. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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6.3. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

YS



KAMAND CUNEO
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800